WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

a crystalline semiconductor film on an insulating surface comprising a source region, a drain region, and an active region formed between said source and drain regions; and

a gate electrode adjacent to said active region with a gate insulating film interposed therebetween,

wherein said active region comprises at least one channel forming region and at least one impurity region shifting an energy band of said crystalline semiconductor film; and

wherein a depletion layer is deterred from spreading from said drain region toward said source by said impurity region.

2. A semiconductor device according claims 1, wherein said impurity region and said channel forming region are substantially in parallel with each other and alternately aligned; and

wherein said impurity region is so formed as to extend from said source region to said drain region.

3. A semiconductor device according claims 1, wherein a majority-carrier movement path is regulated by said impurity region.

4. A semiconductor device according claims 1, wherein said channel forming region becomes a majority-carrier movement path, and said impurity region becomes a movement path for drawing out minority carriers to the exterior of said active region.

5. A semiconductor device according claims 1, wherein said channel forming region is intrinsic or substantially intrinsic.

6. A semiconductor device according claims 1, wherein said crystalline semiconductor film has a polycrystalline structure or a substantially monocrystalline structure.

7. A semiconductor device according to claim 6, wherein a main orientation face of said crystalline semiconductor film having said substantially monocrystalline structure is a {110} face.

8. A semiconductor device according claims 1, wherein said crystalline semiconductor film is obtained by crystallizing an amorphous semiconductor film.

9. A semiconductor device according claims 1, wherein elements selected from the group XIII are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

10. A semiconductor device according to claim 9, wherein the elements selected from the group XIII comprise one of boron and indium.

11. A semiconductor device according to claims 1, wherein elements selected from the group XV are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

12. A semiconductor device according to claim 11, wherein the elements selected from the group XV comprise one of phosphorous, arsenic and antimony.

13. A semiconductor device comprising:

a crystalline semiconductor film on an insulating surface comprising a source region, a drain region, and an active region formed between said source and drain regions; and

a gate electrode adjacent to said active region with a gate insulating film interposed therebetween,

wherein said active region comprises at least one channel forming region and at least one impurity region shifting an energy band of said crystalline semiconductor film; and

wherein a threshold value voltage of said semiconductor device is controlled by said impurity region.

14. A semiconductor device according claims 13, wherein said impurity region and said channel forming region are substantially in parallel with each other and alternately aligned; and

wherein said impurity region is so formed as to extend from said source region to said drain region.

15. A semiconductor device according claims 13, wherein a majority-carrier movement path is regulated by said impurity region.

16. A semiconductor device according claims 13, wherein said channel forming region becomes a majority-carrier movement path,

and said impurity region becomes a movement path for drawing out minority carriers to the exterior of said active region.

17. A semiconductor device according claims 13, wherein said channel forming region is intrinsic or substantially intrinsic.

18. A semiconductor device according claims 13, wherein said crystalline semiconductor film has a polycrystalline structure or a substantially monocrystalline structure.

19. A semiconductor device according to claim 13, wherein a main orientation face of said crystalline semiconductor film having said substantially monocrystalline structure is a {110} face.

20. A semiconductor device according claims 13, wherein said crystalline semiconductor film is obtained by crystallizing an amorphous semiconductor film.

21. A semiconductor device according claims 13, wherein elements selected from the group XIII are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

22. A semiconductor device according to claim 21, wherein the elements selected from the group XIII comprise one of boron and indium.

23. A semiconductor device according to claims 13, wherein elements selected from the group XV are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

24. A semiconductor device according to claim 23, wherein the elements selected from the group XV comprise one of phosphorous, arsenic and antimony.

25. A semiconductor device comprising:

a crystalline semiconductor film, on an insulating surface, comprising a source region, a drain region, and an active region formed between said source and drain regions; and

a gate electrode adjacent to said active region with a gate insulating film interposed therebetween,

wherein said active region comprises at least one channel forming region and at least one impurity region shifting an energy band of said crystalline semiconductor film; and

wherein a depletion layer is deterred from spreading from said drain region toward said source region and a threshold value voltage of said semiconductor device is controlled by said impurity region.

26. A semiconductor device according claims 25, wherein said impurity region and said channel forming region are substantially in parallel with each other and alternately aligned; and

wherein said impurity region is so formed as to extend from said source region to said drain region.

27. A semiconductor device according claims 25, wherein a majority-carrier movement path is regulated by said impurity region.

28. A semiconductor device according claims 25, wherein said channel forming region becomes a majority-carrier movement path, ~~and said impurity region becomes a movement path for drawing out~~ minority carriers to the exterior of said active region.

29. A semiconductor device according claims 25, wherein said channel forming region is intrinsic or substantially intrinsic.

30. A semiconductor device according claims 25, wherein said crystalline semiconductor film has a polycrystalline structure or a substantially monocrystalline structure.

31. A semiconductor device according to claim 30, wherein a main orientation face of said crystalline semiconductor film having said substantially monocrystalline structure is a {110} face.

32. A semiconductor device according claims 25, wherein said crystalline semiconductor film is obtained by crystallizing an amorphous semiconductor film.

33. A semiconductor device according claims 25, wherein elements selected from the group XIII are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

34. A semiconductor device according to claim 33, wherein the elements selected from the group XIII comprise one of boron and indium.

35. A semiconductor device according to claims 35, wherein ~~elements selected from the group XV are added to said~~ impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

36. A semiconductor device according to claim 25, wherein the elements selected from the group XV comprise one of phosphorous, arsenic and antimony.

37. A method of manufacturing a semiconductor device, comprising the steps of:

forming a crystalline semiconductor film over an insulating surface; and

adding impurity elements that shifts an energy band of said crystalline semiconductor film to a portion of said crystalline semiconductor film which will come to an active region later to locally form an impurity region;

wherein said impurity region is formed so as to be discontinuous on a joint portion between active region and a drain region.

38. A method according to claim 37, wherein said crystalline semiconductor film forming step comprises the steps of:

forming an amorphous semiconductor film over said insulating surface;

holding catalytic elements that promote the crystallization of said amorphous semiconductor film on said amorphous semiconductor film;

crystallizing said amorphous semiconductor film through a heat treatment to transform said amorphous semiconductor film into a crystalline semiconductor film; and

gettering said catalytic elements remaining in said crystalline semiconductor film to a processing atmosphere through a heat treatment in an atmosphere containing halogen elements therein.

39. A method according to claim 37, wherein said crystalline semiconductor film forming step comprises the steps of:

forming an amorphous semiconductor film on an insulating surface;

holding catalytic elements that promote the crystallization of said amorphous semiconductor film on said amorphous semiconductor film;

crystallizing said amorphous semiconductor film through a heat treatment to transform said amorphous semiconductor film into a crystalline semiconductor film; and

introducing elements selected from the group XV into a predetermined region of said crystalline semiconductor film; and

gettering said catalytic elements in said crystalline semiconductor film into which said elements selected from the group XV through a heat treatment.

40. A method according to claim 37, wherein elements selected from the group XIII are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

41. A method according to claim 40, wherein the elements ~~selected from the group XIII comprise one of boron and indium.~~

42. A method according to claim 37, wherein elements selected from the group XV are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

43. A method according to claim 42, wherein the elements selected from the group XV comprise one of phosphorous, arsenic and antimony.

44. A method according to claim 37, wherein said crystalline semiconductor film has a polycrystalline structure or a substantially monocrystalline structure.

45. A method according to claim 44, wherein a main orientation face of said crystalline semiconductor film having a substantially monocrystalline structure is a {110} face.

46. A method according to claim 37, wherein said crystalline semiconductor film is obtained by crystallizing an amorphous semiconductor film.

47. A method according to claim 38, wherein said catalytic elements are one or plural kinds of elements selected from the group consisting of Ni, Co, Fe, Pd, Pt, Cu, Au, Ge, Pb and In.

~~48. A method according to claim 37, wherein said impurity region is formed through the ion implanting method.~~

49. A method of manufacturing a semiconductor device, comprising the steps of:

forming a crystalline semiconductor film over an insulating surface; and

adding impurity elements that shifts an energy band of said crystalline semiconductor film to a portion of said crystalline semiconductor film which will come to an active region later to locally form an impurity region;

wherein said active region is divided into a plurality of channel forming regions by said impurity region.

50. A method according to claim 49, wherein said crystalline semiconductor film forming step comprises the steps of:

forming an amorphous semiconductor film over said insulating surface;

holding catalytic elements that promote the crystallization of said amorphous semiconductor film on said amorphous semiconductor film;

crystallizing said amorphous semiconductor film through a heat treatment to transform said amorphous semiconductor film into a crystalline semiconductor film; and

gettering said catalytic elements remaining in said crystalline semiconductor film to a processing atmosphere through a heat treatment in an atmosphere containing halogen elements therein.

51. A method according to claim 49, wherein said crystalline semiconductor film forming step comprises the steps of:

forming an amorphous semiconductor film on an insulating surface;

holding catalytic elements that promote the crystallization of said amorphous semiconductor film on said amorphous semiconductor film;

crystallizing said amorphous semiconductor film through a heat treatment to transform said amorphous semiconductor film into a crystalline semiconductor film; and

introducing elements selected from the group XV into a predetermined region of said crystalline semiconductor film; and

gettering said catalytic elements in said crystalline semiconductor film into which said elements selected from the group XV through a heat treatment.

52. A method according to claim 49, wherein elements selected from the group XIII are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

53. A method according to claim 52, wherein the elements selected from the group XIII comprise one of boron and indium.

54. A method according to claim 49, wherein elements selected from the group XV are added to said impurity region with the concentration of 1×10^{17} to 1×10^{20} atoms/cm^3.

55. A method according to claim 54, wherein the elements ~~selected from the group XV comprise one of phosphorous, arsenic and~~ antimony.

56. A method according to claim 49, wherein said crystalline semiconductor film has a polycrystalline structure or a substantially monocrystalline structure.

57. A method according to claim 56, wherein a main orientation face of said crystalline semiconductor film having a substantially monocrystalline structure is a {110} face.

58. A method according to claim 49, wherein said crystalline semiconductor film is obtained by crystallizing an amorphous semiconductor film.

59. A method according to claim 50, wherein said catalytic elements are one or plural kinds of elements selected from the group consisting of Ni, Co, Fe, Pd, Pt, Cu, Au, Ge, Pb and In.

60. A method according to claim 49, wherein said impurity region is formed through the ion implanting method.